Table 4-continued

Sample No.	pH	1.2μ Filtration Rates ml/sec	FILTRATION OF KELZAN IN HIGH % (S) EDPW Kelzan ppm	(S) EDPW %	$NaHCO_3$ ppm	Acid	NaOH	Ca^{++} Substituted For Mg^{++}	Dequest ppm	EDTA ppm
3	7.9	100/43, 250/407	500	50	—	—	X	—	—	—
4	5.6	100/16, 250/121	1,000	80	—	HCl	—	—	—	—
5	6.0	100/21, 160/204	1,000	80	—	Acetic	—	—	—	—
6	6.5	100/17, 200/335	1,000	80	—	Acetic	—	—	100	
7	8.4	25/1,176	1,000	80	—	—	X	—	100	—
8	7.6	50/670	1,000	80	—	—	X	—	100	3,684
9	6.0	100/21, 150/114	1,000	80	—	Acetic	X	—	100	3,684
10	7.8	50/33, 100/234	1,000	80	2,000	—	—	—	—	—
11	6.8	100/17, 195/206	1,000	80	2,000	Acetic	—	—	—	—
12	7.7	50/10, 100/240	1,000	80	2,000	—	X	—	100	—
13	7.6	50/18, 150/180	1,000	80	2,000	—	X	X	—	—
14	7.6	50/17, 150/196	1,000	80	—	—	X	X	—	—
15*	5.9	50/22, 83/990	1,000	80	—	HCl	—	—	—	—

* = Not Enzyme Clarified
X = Presence of Chemical

What is claimed is:

1. In a xanthan gum polymer solution clarification process in which an aqueous xanthan gum polymer solution that contains bacterial cell bodies is reacted with a protease enzyme, a method for concurrently reducing the treatment time and the bacteria nutritive protein content of the treated solution comprising:

mixing the enzyme and the polymer within an aqueous xanthan gum polymer solution having a temperature from 60° to 70° C., a pH of from about 10 to 11 and containing from about 6,000 to 8,000 ppm of the polymer to initiate the enzymatic disintegration of the bacterial cell bodies;

before about one fourth of the time needed for complete bacterial cell bodies disintegration, and at least as soon as a predominate proportion of bacterial cell bodies have been separated from the polymer but are still substantially intact, terminating the enzymatic cell disintegration by adjusting the pH of the solution to the extent required to provide a pH of from about 10 to 11, contacting the solution with siliceous solids having surface areas and adsorbtivities at least substantially equaling those of a relatively fine sand sized in the order of 100 mesh, adjusting the solution pH to from about 5–7, and filtering out the siliceous solids and adsorbed partially disintegrated bacterial cell bodies by flowing the liquid portion of the polymer solution through a filter that has relatively large effective pore sizes at least equivalent to those of a 10-micron teflon millipore filter but is capable of removing substantially all of the siliceous solids and at least about 80% of the bacterial cell bodies, so that (a) the filtering time is shortened relatively to that obtainable with either a filter having finer pores or with a polymer solution having a higher pH and (b) the so treated solution is substantially free of proteinaceous material formed by the enzymatic disintegration of bacterial cell bodies.

2. The process of claim 1 in which the siliceous solids which are mixed with the enzyme-containing solution of polymer comprise diatomaceous earth particles having average sizes of from about 1 to 300 microns.

3. The process of claim 1 in which the aqueous liquid within which the polymer and enzyme are mixed to form said polymer solution is a relatively soft brine having a total dissolved solids content of from about 50 to 5,000 ppm.

4. The process of claim 3 in which the aqueous liquid contains an oxygen-scavenging amount of dissolved sulfite and catalyst.

5. The process of claim 4 in which the aqueous liquid is prefiltered prior to the addition of the enzyme.

6. The process of claim 3 in which the aqueous liquid contains a carbonate-bicarbonate buffer system for maintaining the pH at from about 10 to 11.

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